Compounding
Course Design
2005-2006

Course Information

Organization: EASTERN ARIZONA COLLEGE
Division: Science & Allied Health
Course Number: HCE 177
Title: Compounding
Credits: 2
Developed by: Mayuree Siripoon, RN, DSN
Lecture/Lab Ratio: 2 hours lecture per week or 32 total hours
Transfer Status: Non-Transfer
Activity Course: No
CIP Code: 51.0800
Assessment Mode: Pre-Post Test (Questions =50, Points=50)
Semester Taught: Spring Semester & Upon Request
GE Category: None
Separate Lab: No
Awareness Course: No
Intensive Writing Course: No

Prerequisites
None

Goals
Students will demonstrate knowledge and skills, which are appropriate for their functional levels in the health care system.

Description
This course introduces the concepts of pharmaceutical compounding. It is designed for pharmacy technician students. The content includes introduction to compounding; compounding practices and considerations; facilities, equipment, supplies; quality assurance and record keeping; capsules, tablets, and powders; lozenges, troches, sticks, and suppositories; solutions, suspensions, and emulsions; ointments, creams, pastes, and gels; ophthalmic, otic, and nasal preparations; medication flavoring; and veterinary compounding.

Textbooks
Johnston, Mike. Compounding. Publisher: Pearson/Prentice Hall. Year: 2006. Required
Supplies
None

Competencies and Performance Standards

1. Acquaint self with the introduction to compounding.
   
   **Learning objectives**
   
   *What you will learn as you master the competency:*
   
   a. Explain the reasons why compounding is a vital part of pharmacy practice.
   b. List different types of compounding formulations.
   c. Identify specific considerations for patient care and compounding.
   d. Describe various patient types that commonly use compounds.
   e. Discuss the role of pharmacy technicians in compounding.
   
   **Performance Standards**
   
   *Competence will be demonstrated:*
   
   o On assigned activities and written exams.
   
   *Performance will be satisfactory when:*
   
   o Learner responds correctly to exam questions.

2. Be familiar with compounding practices and considerations.
   
   **Learning objectives**
   
   *What you will learn as you master the competency:*
   
   a. List the factors that must be considered when deciding to compound.
   b. List the reference books that every compounding pharmacy should have.
   c. Define and describe solubility, stability, and shelf life.
   d. Explain general compounding practices.
   e. List general guidelines to follow when determining expiration dates.
   
   **Performance Standards**
   
   *Competence will be demonstrated:*
   
   o On assigned activities and written exams.
   
   *Performance will be satisfactory when:*
   
   o Learner responds correctly to exam questions.

3. Specify facilities, equipment, and supplies.
   
   **Learning objectives**
   
   *What you will learn as you master the competency:*
   
   a. Describe what a compounding facility looks like.
   b. Identify the equipment contained within a compounding pharmacy.
   c. List the supplies necessary to extemporaneously compound prescription medication.
d. Outline important factors with regard to setting up a facility.
e. Specify procedures for maintaining the facility.

**Performance Standards**

*Competence will be demonstrated:*
- On assigned activities and written exams.

*Performance will be satisfactory when:*
- Learner responds correctly to exam questions.

4. **Perform quality assurance and record keeping.**

**Learning objectives**

*What you will learn as you master the competency:*

- Define quality control and quality assurance.
- Recognize standard operating procedures (SOPs) and how to use them.
- Explain how to perform end-product testing on non-sterile compounds.
- Explain how to perform end-product testing on sterile compounds.
- List the records required for compounding activities.
- To properly document information about compounding activities.
- Describe the proper training required of compounding personnel.

**Performance Standards**

*Competence will be demonstrated:*
- On assigned activities and written exams.

*Performance will be satisfactory when:*
- Learner responds correctly to exam questions.

5. **Recognize capsules, tablets, and powders.**

**Learning objectives**

*What you will learn as you master the competency:*

- Distinguish the different types of capsules, tablets, and powders.
- List the ingredients and composition properties required to prepare capsules, tablets, and powders.
- Explain the procedures and techniques used to prepare capsules, tablets and powders.
- Describe how to perform quality control testing of capsules, tablets, and powders.
- Select appropriate packaging for the compounded capsules, tablets, and powders.
- List the labeling requirements for capsules, tablets, and powders.
- Evaluate the stability of capsules, tablets, and powders.

**Performance Standards**

*Competence will be demonstrated:*
- On assigned activities and written exams.

*Performance will be satisfactory when:*

6. **Recognize lozenges, troches, sticks, and suppositories.**

**Learning objectives**

*What you will learn as you master the competency:*

a. Distinguish the different types of lozenges, troches, sticks, and suppositories.
b. List the ingredients and composition properties required to prepare lozenges, troches, sticks, and suppositories.
c. Explain the procedures and techniques used to prepare lozenges, troches, sticks, and suppositories.
d. Describe how to perform quality control testing of lozenges, troches, sticks, and suppositories.
e. Select appropriate packaging for the compounded lozenges, troches, sticks, and suppositories.
f. Define the labeling requirements for lozenges, troches, sticks, and suppositories.
g. Evaluate the stability of lozenges, troches, sticks, and suppositories.

**Performance Standards**

*Competence will be demonstrated:*

- On assigned activities and written exams.

*Performance will be satisfactory when:*

- Learner responds correctly to exam questions.

7. **Acquaint self with solutions, suspensions and emulsions.**

**Learning objectives**

*What you will learn as you master the competency:*

a. Distinguish the different types of solutions, suspensions, and emulsions.
b. List the ingredients and composition properties required to prepare solutions, suspensions, and emulsions.
c. Explain the procedures and techniques used to prepare solutions, suspensions, and emulsions.
d. Describe how to perform quality control testing of solutions, suspensions, and emulsions.
e. Select appropriate packaging for the compounded solutions, suspensions, and emulsions.
f. Define the labeling requirements for solutions, suspensions, and emulsions.
g. Evaluate the stability of solutions, suspensions, and emulsions in assigning beyond-use dates and storage requirements.

**Performance Standards**

*Competence will be demonstrated:*

- On assigned activities and written exams.

*Performance will be satisfactory when:*

- Learner responds correctly to exam questions.
8. **Describe ointments, creams, pastes, and gels.**

**Learning objectives**

*What you will learn as you master the competency:*

a. Identify the different types of ointments, creams, pastes, and gels.

b. Distinguish the ingredients and composition properties required to prepare ointments, creams, pastes, and gels.

c. Explain the procedures and techniques used to prepare ointments, creams, pastes, and gels.

d. State how to perform quality control testing of ointments, creams, pastes, and gels.

e. Select appropriate packaging for the compounded ointments, creams, pastes, and gels.

f. List the labeling requirements for ointments, creams, pastes, and gels.

g. Evaluate the stability of ointments, creams, pastes, and gels in assigning beyond-use dates and storage requirements.

**Performance Standards**

*Competence will be demonstrated:*

- On assigned activities and written exams.

*Performance will be satisfactory when:*

- Learner responds correctly to exam questions.

9. **Be familiar with ophthalmic, otic, and nasal preparations.**

**Learning objectives**

*What you will learn as you master the competency:*

a. Identify the different types of ophthalmic, otic, and nasal preparations.

b. Distinguish the ingredients and composition properties required to prepare ophthalmic, otic, and nasal preparations.

c. Describe the procedures and techniques used to compound ophthalmic, otic, and nasal preparations.

d. Specify procedures to perform quality control testing on the ophthalmic, otic, and nasal preparations.

e. Select appropriate packaging for the compounded ophthalmic, otic, and nasal products.

f. Define the labeling requirements for ophthalmic, otic, and nasal preparations.

g. Evaluate the stability of ophthalmic, otic, and nasal preparations in assigning beyond-use dates and storage requirements.

**Performance Standards**

*Competence will be demonstrated:*

- On assigned activities and written exams.

*Performance will be satisfactory when:*

- Learner responds correctly to exam questions.
10. Identify medication flavoring.

Learning objectives
What you will learn as you master the competency:
   a. Describe the proper excipients and techniques used in flavoring medications.
   b. List the various properties of chemicals, flavoring agents, sweetening agents, suspending agents, diluting agents, and coloring agents.
   c. Define different patient types and individual drug classes and recommend the most appropriate flavor choices for each group.

Performance Standards
Competence will be demonstrated:
   o On assigned activities and written exams.

Performance will be satisfactory when:
   o Learner responds correctly to exam questions.

11. Understand veterinary compounding.

Learning objectives
What you will learn as you master the competency:
   a. Identify the aspects of compounding medications for animals.
   b. List guidelines for establishing a working relationship with veterinarians.
   c. Outline regulatory issues and precautions that should be met.
   d. Formulate suggestions for choosing the best route of administration with regard to size and species of the animal to be treated.

Performance Standards
Competence will be demonstrated:
   o On assigned activities and written exams.

Performance will be satisfactory when:
   o Learner responds correctly to exam questions.

Types of Instruction
Classroom Presentation

Grading Information

Grading Scale
A  90-100%
B  80-89%
C  70-79%
D  60-69%
F  0-59%